ATTACHMENT A

CALFED BAY-DELTA PROGRAM
PROPOSED ASSESSMENT VARIABLES

I. PHYSICAL ENVIRONMENT

A. Surface-Water Hydrology
   1. Runoff from watersheds
   2. Evapotranspiration from program features

B. Water Management Facilities and Operations
   1. Reservoir storage volumes, releases, and spills
   2. Instream flow targets, deficits, and surpluses
   3. Diversions/exports targets, deficits, and surpluses
   4. Agricultural drainage volumes
   5. Reliability to withstand catastrophic disruption

C. Groundwater Hydrology
   1. Groundwater supply
   2. Conjunctive use supply

D. Riverine Hydraulics
   1. Hydraulic geometry relative to natural erosion/deposition processes

E. Bay-Delta Hydrodynamics
   1. Delta outflow
   2. X2 location
   3. Channel flows at key Delta locations
   4. Water entrainment in diversions/exports

F. Water Quality
   1. EC in agricultural irrigation water (Delta and export)
   2. Chloride and bromide levels in export water
   3. Dissolved organic carbon levels in export water
   4. Disinfection byproduct concentrations in treated drinking water
   5. Dissolved oxygen concentration in San Joaquin River at Stockton
   6. Selenium levels in San Joaqui River inflow
   7. Heavy metal and pesticide residue concentrations
   8. Nutrients
   9. Microbiological parameters (coliforms, *E. coli*, cryptosporidium, giardia)

G. Geomorphology

1. Soil erosion from agricultural operations
2. Bank erosion from channel migration
3. Soil salinity
4. Subsidence caused by peat oxidation
5. Subsidence caused by groundwater withdrawals

H. Air Quality
1. Dust and smoke from agricultural operations
2. Power plant emissions caused by changes in hydropower generation or pumping
3. Emissions produced by construction and operation of facilities

II. Biological Environment

A. Riverine Aquatic Habitat
1. Area of suitable spawning substrates
2. Area of suitable rearing and migration habitat
3. Area of floodplain subject to natural erosion/deposition processes
4. Area of floodplain subject to periodic wet-year inundation
5. Total channel length and length of non-riprap bank
6. Length of shaded riverine aquatic (SRA) habitat
7. Flow through unscreened diversions
8. Connectivity and juxtaposition of restored habitats

B. Estuarine Aquatic Habitat
1. Area of shallow tidal habitat (depth ranges: <1 m, 1-2 m, >2m)
2. Area of shallow/shaded riverine habitat
3. Length of SRA habitat
4. Area of channel subject to natural erosion/depositon processes
5. Flow through unscreened diversions
6. Connectivity and juxtaposition of restored habitats
7. Primary productivity in key rearing habitats
8. Problem introduced species populations

C. Fishery Resources
1. Winter-run chinook salmon
2. Spring-run chinook salmon
3. Late fall-run chinook salmon
4. Sacramento fall-run chinook salmon
5. San Joaquin fall-run chinook salmon
6. Steelhead trout
7. American shad
8. Green sturgeon
9. White sturgeon
10. Striped bass
11. Splittail

12. Delta smelt
13. Longfin smelt

D. Wetland and Terrestrial Habitat
   1. Area of freshwater marsh habitat
   2. Area of riparian woodland habitat
   3. Area of agricultural lands providing wildlife habitat values

E. Plants and Wildlife
   1. Special-status species locations and populations
   2. Important species groups
   3. Problem introduced species populations

III. Economics and Social Environment

A. Land Use
   1. Acres in agricultural uses
   2. Acres in open space and habitat uses
   3. Acres in developed uses

B. Flood Control System and Other Infrastructure
   1. Probability of levee failure
   2. Value of facilities and property protected by flood control system
   3. Cost of repair and rehabilitation of facilities after levee failure
   4. Cost of flood-damage protection

C. Agricultural Economics
   1. Cost of production
   2. Value of production
   3. Agricultural net income
   4. Cost of water supply variability

D. Municipal and Industrial Water Supply Economics
   1. Cost of water supply
   2. Cost of water shortage
   3. Cost of treatment

E. Power Production
   1. Quantity and value of energy produced
   2. Quantity and cost of energy consumed

F. Recreation and Visual Resource
   1. Visual conditions
   2. Recreation opportunities
   3. Recreation use

G. Cultural Resources

H. Commercial Fishing
   1. Value of harvest
   2. Cost of harvest

I. Fish, Wildlife, and Recreation Economics
   1. Income
   2. Employment
   3. Spending

J. Regional Economics
   1. Income
   2. Employment
   3. Fiscal conditions

K. Public Health
   1. Mosquitos
   2. Other disease vectors

L. Social Well-Being
   1. Community stability
   2. Indian trust assets